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RECONNAISSANCE OF WEST SIDE INFESTATION CONDITIONS

SEASON OF 1939

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RECONNAISSANCE OF WEST SIDE INFESTATION CONDITIONS

SEASON OF 1939

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RECONNAISSANCE OF WEST SIDE INFESTATION CONDITIONS, SEASON OF 1939

During the period of September 1 to 15, appraisals have been made of current infestation conditions and tendencies in the west side forest areas lying to the north of U.S. Highway No. 40. This highway crosses the west side subregion in a general east and west direction in the latitude of townships 16 and 17 north, Mount Diablo Meridian. Observations were made chiefly from forest roads traversing the areas and observations were of an extensive or reconnaissance type. Infestations in several hundred trees were examined to determine the species involved in the basal infestations. In addition, counts were made to determine abundance of infested trees. The general area covered by the reconnaissance is shown in Figure 1. This is the first year in which any extensive or general reconnaissance of this area has been attempted.

GENERAL OBSERVATIONS

In general, infestations in the west side areas are more active than they have been for several years. However, the damage this season differs from that usually found as it occurs chiefly on the better rather than the poorer sites. North slopes, fertile basins and areas where climatic conditions usually are favorable to tree growth were among some in which the insects were the most active.

Ponderosa Pine: During 1938 grouping of trees infested by the western pine beetle was of common occurrence throughout much of the wast side area. In particular that was true of second growth pole and thrifty mature stands.

During 1939 activity in ponderosa pine in most areas has been noticeably less than during the latter portion of the 1938 season. In general, much of the 1939 infestation has been of an endemic type and has resulted in the killing of scattered overmature or decadent trees occurring in normal numbers throughout the stands. However, in several areas, which will be discussed in detail later, marked activity has continued during the 1939 season and epidemic infestations existed at the time the examination was made.

In addition it has been noted, on several recently cutover areas, that Ips confusus and D. brevicomis have killed groups of relatively thrifty poles during the 1939 season. Though some injury is bound to occur on going timber operations, the amount that has occurred this season seems much greater than normal. Also, new construction, line slash and other activities in forested areas have resulted in the death of small groups of trees and have contributed to continuation of infestations in second growth stands.

Sugar Pine: Throughout the west side area, the 1938 activity by the mountain pine beetle has been continued during 1939. Throughout the area, this has resulted in increased losses. The greatest damage seemed to center on the northwestern Tahoe, western Plumas and southwestern Lassen areas. One average road count over 17 miles of road through good sugar pine type revealed 47 large infested mature sugar pines, about one tree to each thirty acres. This count does not, however, represent the losses in areas of heaviest infestation, but is more nearly the average for a large area. In some areas it is estimated that losses of large sized sugar pines might run as high as one tree to each ten acres.

Groups of up to ten mature sugar pines were found to be infested. In general a considerable portion of the activity started in the fall of 1938. Much of the infestation of large numbers of sugar pine poles and thrifty immature trees was concerned directly with infestations of injured trees and occurred chiefly in 1938. However, in the mature trees, the 1938 fall infestations resulted chiefly in but a partial topkilling infestation of the tree. During 1939 the activity has chiefly been that of completing the infestation in those trees and the start of infestations in many new trees that were unaffected by the 1938 attacks. For the most part, examinations of the larger trees showed that fully fifty percent of them had green bases or were just being attacked by mountain pine beetle broods. In addition, many of them had small flathead larvae in the phloem, probably the results of summer attacks by Melanophila gentilis. The turpentine beetle was active in the infestations of root crowns, particularly in those trees in which at least the lower portions of the bole remained uninfested after they appeared to be relatively unsuccessful in their attacks.

White Fir: Observations indicate that 1938 losses in this species were greater in that season than for several previous years. Numerous slightly off colored firs were examined and were found to contain 1939 broods of the fir engraver beetle (Scolytus ventralis). The indications are that this species is more active in 1939 and that losses in poles as well as in overmature trees will be much greater this season.

Douglas Fir: Considerably more infestation and kill of douglas fir also was noted. Though trees on the poorer sites have been those infested in relatively large numbers in recent years, this season's attacks are on the better sites. In addition the douglas fir beetle (Dendroctonus pseudotsugae) has in many areas replaced the fir flatheaded borer (Melanophila drummondi) as the infesting species. It seems as if this damage can reasonably be linked to the many trees that were injured or windthrown early in 1938.

GENERAL TRENDS

Increased activity by several species of insects attacking several species of trees and localized continuation of epidemic western pine beetle infestations indicate that basic factors must be responsible. Storm damage early in 1938 may have been partially responsible for a build up of large populations. As thirteen of the past fifteen months have had less than normal precipitation, that may also be an important factor. In sugar pine biological studies have shown a low predator population on west side areas to the south.

CONDITIONS ON SPECIAL AREAS

1* McCloud River Valley: In virgin stands in Trout Creek, near Harris Mountain and Angel's Meadows the western pine beetle is active and is killing small groups of thrifty mature and pole types of trees in addition to scattered overmature or decadent types. In second growth pole stands, in particular, the group kills are noticeable and, in several cases large. Where control work was done last spring near McCloud the 1939 infestation is conspicuous by its relative absence. In pole groups that were examined the broods do not seem to have been particularly successful in producing progeny though in the overmature trees heavy broods were found.

Sugar pine infestations near Angel's Meadows are relatively light and are estimated to consist of but about one mature tree to fifty acres. However, the 1939 infestation represents a distinct increase in mountain pine beetle activity and Douglas fir losses in the same area represent similar increases in activity on the part of the douglas fir beetle.

2. Redding-Burney Highway Cross Section: No alarming conditions were found. Near Montgomery Creek the 1938 outbreak in poles and thrifty mature types of trees has subsided, 1939 activity chiefly being the finishing off of previously topkilled individuals. Loss in sugar pine on the Hatchet Mountain Ridge seems nearly normal.

3. Battle Creek Drainage: In the belt of mixed conifer stands extending from Viola south to Mineral, ponderosa pine losses are relatively light and nearly normal. Though activity in sugar pine is not yet serious enough to be alarming the formation of two and three tree groups during 1938 and 1939 near Mineral and the many single tree kills involving mature trees containing considerable volume of high quality timber represent a marked increase in activity.

4. Deer Creek Drainage: Around campgrounds and recreational areas on the North Fork of Deer Creek ponderosa pine losses, chiefly occurring in mature trees, represent a marked increase in activity. On the south slopes of the ridge separating the Deer Creek from the Mill Creek watersheds in the vicinity of Onion Creek Butte, ponderosa pine infestations

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* Approximate location of areas is shown by numbers on map, Figure 1.

FIGURE I

RECONNAISSANCE INFESTATION CONDITIONS NORTHERN SECTION-WEST SIDE SUBREGION

SEASON OF 1939

reached an epidemic status in 1938. Up to the time of observation in 1939 the epidemic was continuing unabated with large groups of thrifty trees succumbing to attacks of summer broods at an estimated density of about 2000 trees per section on about eight sections. Though this is a south slope infestation, it is decidedly one in thrifty and vigorous trees.

On the same ridge between Mill and Deer Creeks and extending from Deer Creek Meadows to the western front of timber, sugar pine losses in all age classes have been heavy. The infestation is continuing with a loss of approximately 150 individual trees per section in all age classes and about thirty trees per section in the valuable mature and overmature classes. South of Deer Creek, towards Chico and Butte Meadows, losses in sugar pine are more nearly normal in virgin stands.

5. North Fork Feather River above Lake Almanor: The presence of scattered groups of from two to five infested sugar pines near Wilson Lake and east to Chester is evidence of an increased activity. However, critical conditions are not represented by current infestations. In this area Jeffrey pine losses for 1938 were not particularly heavy, but, if trends in other similar areas are followed in this area a marked increase is to be expected. As most 1939 trees still are green a careful cruise would be needed to determine accurately the infestation conditions in this species.

6. Butt and Yellow Creek Drainages: Ponderosa pine infestations have continued unabated during the 1939 summer season. From Belden to Longville and in Humbug Valley additional groups of up to about 25 thrifty trees have been killed and contain broods. Between Almanor and Moody Meadows a portion of the area that was found to be relatively uninfested in July now contains groups of infested trees. Around Butt Valley Reservoir numerous 1938 and 1939 groups occur in pole and blackjack stands. One of these (fig. 2) contained between 100 and 150 second growth blackjacks and poles that had been attacked by the 1939 second seasonal generation of the western pine beetle. Nearby were other similar groups as well as four smaller groups of trees that were infested in 1938.

Examination of several of the groups, including that shown in the figure showed that most of the younger infested trees had sour sap bases, partial basal infestations and, so far as could be determined, the attacking adults had been relatively unsuccessful in producing progeny in large numbers. However, included in the infestations are numerous older trees, most of which contained heavy and successful broods. It is estimated that, in the infested areas examined carefully, the 1939 ponderosa pine loss may be as high as 200 stems per section.

In addition, heavy sugar pine losses have developed in the virgin stands, particularly in the vicinity of Butt Valley Reservoir and on the heights above Seneca. One small uncut area (about 40 acres in extent) near Shanghai Creek on Butt Creek, which was completely surrounded by cutover lands, contained four large infested sugar pines (fig. 3). From a distance all but one appeared to have been attacked originally in 1938. However,

Figure 2.

Group of poles killed by attacks of 1939 second seasonal generation of western pine beetle. Butt Valley Reservoir, Plumas Co., California. 9/14/39. K. A. Salman.

Figure 3.

Group of four mature sugar pine killed by mountain pine beetle during 1938 and 1939. Butt Creek, Plumas Co., California. 9/14/39. K. A. Salman.

three contained 1939 broods, one with new adults, another with small larvae and the third was just being attacked by the mountain pine beetle and also had small flathead larvae in the phloem. The fourth tree had a green base. This condition, both of foliage and of infestation was found to be typical in many of the trees that have been examined. Many seemingly old trees contained new attacks or had green phloem in the basal portions of the bole.

7. Keddie Ridge - Kettle Rock, Mount Hough: Infestations in this area were not typical of other west side infestations. The situation was more typically that of the eastside Plumas areas. Losses in ponderosa pine were moderate, some douglas fir kill was occurring, few sugar pine losses were seen and an increased activity on the part of the Jeffrey pine beetle was evident.

8. Rush Creek Drainage: On the ridge between the east and west branches of the North Fork of Feather River sugar pine losses were heavy. Where cutting was going on in Wolf Creek timber an unusual activity in ponderosa and sugar pine poles was noted in parts of the areas. Near Long Valley sugar pine losses were noticeably lighter.

9. Indian and American Valleys: Around Indian Valley and on the slopes between Keddie and Crescent Mills typical sugar pine infestations typical of those found generally in other westside areas occur. They are estimated to average about twenty-five mature trees per section in addition to the losses in pole and thrifty immature age classes.

In second growth ponderosa pine, group losses in pole stands were typical of the infestation. On the grounds of the Quincy High School two large groups of infested trees have already been treated. In thrifty second growth trees in the grove on the grounds of the Greenville Union High School students were seen treating the infestation of about a dozen trees. Group losses were only occasional around Indian Valley, but near Quincy they were scattered through the stands on the lower slopes near town and along the road to the Feather River Experiment Station.

From Greenville to Canyon Dam Store near Lake Almanor the losses in ponderosa pine were chiefly in the mature and overmature tree classes.

10. Inskip - Flea Valley: One of the most spectacular infestations in sugar pine was found northeast of Stirling City. Losses were estimated to average about sixty trees per section. One group of about ten trees was noted and smaller groups and individual trees were numerous. The heavy infestation was seen to extend to the east as far as Bald Hill. To all appearances the infestation was general throughout the area yet local information indicated that little or no loss existed in the Flea Valley area which lies to the south and east.

11. Buck's Lake Highway: Most of the stands adjacent to the road are cutover, but sufficient sugar pine loss was seen to indicate that the general westside infestation trends existed in this area. Infestations seen to the west of Quincy were heavy and similar to those noted under areas 8 and 9.

12. Dobbins - Stringtown Hill - Berry Creek - Magalia: Second growth ponderosa pine stands at the lower elevations and on the western front of the timber belt showed little current activity. With the exception of the Magalia area, 1939 group losses were fewer than in similar areas to the south.

13. Eagleville - Cascade - Mooretown: From Strawberry to American House on the LaPorte road and throughout the area from LaPorte west to Camel Peak and down Limpkin Ridge, sugar pine losses were heavy, averaging about fifty trees per section. It was difficult to estimate the exact extent of the losses because of inclement weather. However, some of the most serious losses seen were on this area in which some of the best sugar pine in the state now occurs in virgin stands.

14. Celestial Valley-Nevada City - Applegate: Second growth ponderosa pine stands in this belt suffered heavy losses in 1939. Less important but considerable activity continues to exist in parts of the area this season. In Celestial Valley (Oregon Creek drainage) current Ips topkilling work was seen in a group of about twenty poles. In addition current activity was represented by infestations of several groups of up to four and numerous other single mature trees.

Near North San Juan pole line construction has lead to infestation of several groups of poles. Toward Nevada City and Applegate, in addition to continuation of the 1938 infestation by 1939 Ips and western pine beetle activity, a considerable loss has been brought on by fires, intermittent small sawmill operations and other hazards accompanying the intensive use given these stands.

15. Graniteville - Allegheny: About a twenty-five tree per section sugar pine infestation exists in the Graniteville basin. From the Cherry Hill Lookout it was estimated that some five hundred red tops might be counted in the area that could be seen. Near Allegheny a current group kill in ponderosa pine was seen in Kanaka Creek from the Lookout on Cherry Hill.

CONTROL POSSIBILITIES

This report is primarily to place on record our appraisals of infestation conditions in the area covered by the reconnaissance and to acquaint lumber owning and managing agencies with conditions in these areas. In addition, however, it is desirable that we appraise control possibilities as well.

The 1939 infestations in white fir and douglas fir can be dismissed with little or no consideration of the possibilities of control.

In areas numbered 1, 4, 6, 9 and 14 ponderosa pine infestations are active enough to warrant consideration and suggest the desirability of control action. The sugar pine outbreak in many portions of the area (4,6,8,9,10,13,15) is serious enough to suggest control on a rather extensive scale.

Were the 1939 losses in the reconnaissance area to be brought together in one place there would be a realization on the part of the public of the great destructiveness of the current barkbeetle activities. Because the infestations are scattered over a large area and are widespread, only an occasional person recognizes their import. Nevertheless, the great destructiveness of the 1939 infestations remains as a fact.

No known public or private resources are available in sufficient amounts to control ponderosa and sugar pine infestations in all of the high loss areas. Thus any general control program is out of the question. It becomes chiefly a problem of picking out areas where control can be carried out with reasonable dispatch and efficiency. In ponderosa pine infestations control must be the major consideration because of the rapid degrade which makes consideration of salvage values in infested trees practically impossible except under special conditions. In sugar pine infestations, however, control action can reasonably be expected to be accompanied by salvage considerations.

MEMORANDUM FOR REGIONAL FORESTER

Re: Insect Control Possibilities, Westside Areas, Season of 1939.

Reference is made to a recent report "Reconnaissance of west side infestation conditions, Season of 1939", and to your letter of October 13, 1939 to the Chief, Forest Service, Washington, D. C. (S-CONTROL-Insects).

The following information is submitted in response to your request for outlines of a few control project areas in which control might be "within the realm of practical accomplishment". The accompanying maps show approximate boundaries of seven areas which have been selected on the basis of insect activity. Ownership has not been considered in outlining these areas. Type and topographic boundaries have been used wherever possible. Descriptions and estimates are as follows:

Area I. Ridge between Mill and Deer Creeks

Approximate area - 22,000 acres
Estimated infestation needing treatment - 700 sugar pine
400 ponderosa pine
Type of infestation - Sugar pine moderately heavy, scattered, general
Ponderosa pine epidemic, grouped, localized.

Area II. West Shore of Lake Almanor

Approximate area - 17,500 acres (Extent of virgin timber tract not known accurately)
Estimated infestation needing treatment - 350 sugar pine
1700 ponderosa pine
Type of infestation - Sugar pine moderate to light in spots, scattered.
Ponderosa pine epidemic, grouped, general.

Area III. Senaca - Butt Valley Reservoir

Approximate area - 15,400 acres (Partially cutover)
Estimated infestation needing treatment - 240 sugar pine
1050 ponderosa pine
Type of infestation - Moderate to light Sugar Pine, scattered, general.
Heavy localized grouping of ponderosa pine mostly in small trees in large groups and large single trees scattered through area.

Area IV. Rush Creek

Approximate area - 18,400 acres. (Partially cutover - two active operations)
Estimated infestation needing treatment - 950 sugar pine
200 ponderosa pine
Type of infestation - Heavy sugar pine loss this season. Less than half needing treatment and containing broods.
Ponderosa pine loss light, scattered.

Area V. Yellow Creek

Approximate area - 33,800 acres
Estimated infestation needing treatment - 1000 sugar pine
2300 ponderosa pine
Type of infestation - West of Yellow Creek light sugar pine loss, scattered, general. East of Yellow Creek heavier loss, heaviest west of Butt Reservoir.
Ponderosa pine loss heaviest west of Yellow Creek. Grouped, general, with numerous single large infested trees.

Area VI. Last Chance Creek

Approximate area - 14,000 acres
Estimated infestation needing treatment - 900 sugar pine
Type of infestation - Almost entirely sugar pine. Heavy infestation, scattered, general.

Area VII. Cascade, Camel Peak

Approximate area - 41,000 acres
Estimated infestation needing treatment - 3700 sugar pine
1000 ponderosa pine
Type of infestation - Sugar pine heavy with single large trees scattered over area. Nearly half with green or newly infested basal portions.
Ponderosa pine light, single large trees, sometimes in small groups.

The above estimates are general and are based on reconnaissance notes and data including road counts and examinations of individual trees. Estimates of sugar pines needing treatment include calculations of green butted trees as well as estimates of those containing broods in the base. Infestations of small poles are not included in the estimates, though considerable infestation of small trees is occurring.

If control action is decided upon for any of the above areas, more accurate data should be secured. The large acreages involved and the tremendous stretch of country covered by the fall reconnaissance made it impossible to secure detailed information without considerably more time and money being spent on the project. Inasmuch as late season infestation development may have changed conditions to some extent, a re-examination of a few of the more heavily infested areas is to be made by Patterson within the next week.

Respectfully submitted.

K. A. Salman
Entomologist

Berkeley, California
October 26, 1939